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(YOR.235)

<div align="center">

REMARKS

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Claims 1-25 are all the claims presently pending in the application.

While Applicants believe that all of the claims, as currently written, are patentable over the cited references, to speed prosecution, claims 1, 2, 7, 11, 15, 16, 18-20, and 25 have been amended to define more clearly and particularly the features of the present invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

With respect to the prior art rejections, claims 1, 2, and 6-14 stand rejected on prior art grounds under 35 U.S.C. § 103(a) as being unpatentable over Yutaka, et al. (U.S. Patent No. 5,664,163) in view of Peaslee, et al. (U.S. Patent No. 5,265,203).

Claims 3-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and further in view of Baber, et al. (U.S. Patent No. 6,279,041).

Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Zhao, et al. (U.S. Patent No. 6,405,267).

Claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Deering (U.S. Patent No. 5,544,300).

Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Epard, et al. (U.S. Patent No. 5,241,625).

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Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka

in view of Peaslee, in further view of Epard, and in further view of Nitta, et al. (U.S. Patent

No. 6,392,619).

These rejections are respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

Applicants' invention, as disclosed and claimed, relates to a data transferring

apparatus (and method) for transferring transfer packets each including one or more transfer

data as objectives of transfer from a first apparatus to a second apparatus, wherein each

transfer data includes commands indicating processes against a preliminarily assigned area.

In conventional devices, a raster interface is used to transfer image data, for

example, from a computer to a display apparatus, which requires a large amount of data.

However, when an ultra-high resolution display apparatus is used, there is a possibility that

the data transferring capacity of the communication channel between the computer and the

display apparatus will not be sufficient (e.g., se specification at page 1, lines 7-13).

The claimed invention, on the other hand, <u>solves the problems associated with such</u>

<u>an image data stream being transferred from a computer to an ultra high resolution display</u>

<u>apparatus</u> (e.g., see specification at page 1, lines 17-18, and page 2 lines 1-2).

For example, in an illustrative, non-limiting aspect of the invention as defined, for

example, in independent claim 1, a data transferring apparatus for transferring transfer

packets each including one or more transfer data as objectives of transfer from a first .

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apparatus to a second apparatus, the each transfer data including commands indicating

processes against a preliminarily assigned area, includes a scheduler for merging a plurality

of <u>drawing commands</u> meeting a certain requirement <u>and for translating the merged</u>

<u>drawing commands into a single drawing command, thereby</u> **reducing a volume of the**

transfer data, and a communication controller for generating transfer packets each

including at least one of one or more the <u>plurality of drawing commands</u> whose amount is

within a certain predetermined range and one or more the merged <u>drawing commands. The</u>

communication controller transfers the generated transfer packets to the second apparatus.

Independent claim 2 recites somewhat similarly features as claim 1.

In other exemplary aspects of the invention as defined, for example, by independent

claims 7 and 11, a method includes merging a plurality of <u>drawing commands</u> meeting a

certain requirement <u>and translating the merged drawing commands into a single drawing</u>

<u>command, thereby</u> **reducing a volume of the transfer data**, generating transfer packets

each including at least one of one or more the <u>plurality of drawing commands</u> whose

amount is within a certain predetermined range and one or more the merged <u>drawing</u>

<u>commands,</u> and transferring the generated transfer packets to the second apparatus.

II.   THE PRIOR ART REJECTIONS

For the Examiner's convenience, Applicants incorporate herein by reference in their

entirety the traversal arguments set forth in the Amendment under 37 C.F.R. § 1.111 filed on

September 24, 2004 and the Amendment under 37 C.F.R. § 1.116 filed on March 14, 2005.

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A.   Claims 1, 2, and 6-14 stand rejected on prior art grounds under 35 U.S.C. §

103(a) as being unpatentable over Yutaka in view of Peaslee.

Applicant respectfully traverse this rejection for at least the following reasons.

Independent claims 1, 2, 7, and 11

The Examiner argues that it would be obvious to combine Yutaka and Peaslee to

arrive at the claimed invention (see Office Action at page 3, lines 12-14).

Applicants respectfully submit, however, that it would not have been obvious to

combine Yutaka and Peaslee to arrive at the claimed invention. Moreover, assuming

arguendo that a reasonable motivation existed for making the alleged combination,

Applicants submit that the resulting combination of Yutaka and Peaslee, either individually

or in combination, would not disclose or suggest all of the features of the claimed invention.

In fact, in the present Office Action, the Examiner specifically agreed that "*the offset

described in Yutaka ... has nothing to do with the amount of data volume that the present

application is intended to reduce*" (see Office Action at page 2, lines 9-10; emphasis added).

Applicants submit that Peaslee also has nothing to do with reducing the amount of

data volume.

Thus, Applicants submit that the amount of data volume clearly would not be reduced

by any combination of Yutaka and Peaslee.

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Moreover, it clearly would <u>not</u> be reasonable to combine Yutaka and Peaslee, which

do <u>not</u> reduce the amount of data volume, to arrive at the claimed invention which <u>reduces</u>

<u>the amount of data volume</u>, as recited for example, by independent claims 1 and 2.

For somewhat similar reasons as those set forth above with respect to independent

claims 1 and 2, Applicants submit that Yutaka and Peaslee, either alone or in combination,

do <u>not</u> disclose or suggest all of the features of novel and unobvious methods defined by

claims 7 and 11.

Dependent claims 6, 8-10, and 12-14

Applicants submit that dependent claims 6, 8-10, and 12-14 also are patentable over

the cited references by virtue of their respective dependencies from independent claims 2, 7,

and 11, as well as for the additional features defined therein.

For example, as exemplarily defined by dependent claims 8 and 9, the claimed

invention uses an "*offset*" as a "*reduction*" in <u>the amount of the data volume</u>.

In comparison, Yutaka uses an "offset" as a "relative position" in a certain coordinate

system.

Thus, Applicants submit that the Examiner has mischaracterized the features of

Yutaka and the claimed invention. Thus, Yutaka clearly does not disclose or suggest the

features of claims 8 and 9 for which it is relied upon.

For the foregoing reasons, Applicants respectfully submit that Yutaka and Peaslee,

either alone or in combination, clearly do <u>not</u> disclose or suggest all of the features of claims

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6, 8-10, and 12-14. Accordingly, Applicant respectfully requests that the Examiner withdraw

the rejection of claims 6, 8-10, and 12-14.

B.   Claims 3-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over

Yutaka in view of Peaslee, and further in view of Baber. For the following reasons,

Applicants respectfully traverse this rejection.

Baber is available as prior art only under 35 U.S.C. § 102(e); since Baber was filed on

November 13, 1998 (prior to the present application's filing date of October 10, 2000) and

issued as a U.S. Patent on August 21, 2001 (after the present application's filing date of

October 10, 2000).

Also, Applicants submit that Baber is (and was at the time of the present invention)

commonly assigned (recorded November 13, 1998, at Reel 009599; Frame 0967) to

International Business Machines Corporation (IBM Corporation) as evidenced, for example,

on the face of the U.S. Patent to Baber, et al. and the attached Patent Assignment of Abstract

of Title for U.S. Patent No. 6,279,041B1 to Baber, et al. (which Applicants obtained from the

U.S.P.T.O. Assignments on the Web).

Thus, Applicants respectfully submit that Baber is (and was at the time of the

invention) commonly assigned to IBM Corporation and is available only under 35 U.S.C. §

102(3). Therefore, Baber **can be removed as prior art** under 35 U.S.C. § 103(c).

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For the foregoing reasons, Applicants respectfully submit that the rejection of claims

3-5 under 35 U.S.C. § 103(a) over Yutaka in view of Peaslee, and further in view of Baber

should be withdrawn and that claims 3-5 should be passed to immediate allowance.

C.   Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Zhao.

The Examiner alleges that Zhao combines drawing instructions that affect a same area

for a predetermined short period of time on a frame buffer (see Office Action at page 5, lines

4-5). Applicants respectfully disagree.

That is, Zhao does not make up for the deficiencies of Yutaka and Peaslee. For

example, the actual combining operation of Zhao is completely different than the "merging"

or "combining" of the claimed invention, as exemplarily defined by claims 15-17.

Zhao uses the address portion of commands to select a sort buffer, which stores

commands for the same memory area in the order that the CPU originally wrote (e.g., see

Zhao at column 2, lines 43-59). Because of this command sorting, Zhao can use a bus that

combines multiple write operations to transfer data efficiently. Without using this command

sorting, the write combine operation may change the order of data transfers that affect the

same memory area, and hence, the write combine operation affects the consistency of the

output from the graphics device (e.g., see Zhao at column 2, lines 21-40).

In comparison, in the claimed invention, the merging or combining operation is

neither a sorting operation by the address nor a combining operation for efficient data

transfers. Instead, in the claimed invention, the first apparatus analyzes a sequence of graphics command and merges or changes them in such a way that that <u>the amount of the data volume is reduced</u>.

The claimed invention is capable of providing such novel and unobvious features, for example, because the first apparatus can have a command analysis routine (e.g., 340 in Figure 6) in the present application.

On the other hand, in Zhao, the first apparatus does <u>not</u> have such a device. Thus, Zhao can increase the data transfer efficiency through combining but actually does <u>not</u> <u>reduce the amount of the data volume</u> to be transferred between the two apparatuses.

In other words, Zhao clearly does <u>not</u> reduce the data volume, according to the claimed invention.

Moreover, as mentioned above, Yutaka and Peaslee also do <u>not</u> reduce the data volume.

Thus, Applicants submit that it would <u>not</u> have been obvious to combine Yutaka, Peaslee, and Zhao to arrive at the claimed invention. Further, even assuming *arguendo* that a reasonable motivation existed for combining these references in the manner alleged, Applicants submit that the resulting combination clearly would <u>not</u> disclose or suggest all of the features of the claimed invention, as defined by claims 15-17.

Thus, Applicants respectfully submit that Zhao clearly does <u>not</u> make up for the acknowledged deficiencies of Yutaka and Peaslee. Therefore, Applicants respectfully request that the rejection of claims 15-17 be withdrawn.

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D.   <u>Claims 18-20</u> stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Deering. For the following reasons,

Applicants respectfully traverse this rejection.

Deering provides a special frame buffer that accelerates rendering operations. In

Deering, a pixel buffer (i.e., 56 in Figure 7) arguably employs dirty tags memory (i.e., 194 in

Figure 7) to reduce the volume of the data to be written back to the DRAM memory (e.g., see

Deering at column 19, lines 6-25). However, Deering clearly does <u>not</u> make up for the

deficiencies of Yutaka and Peaslee for several reasons.

First, the pixel buffer (56) in Deering is a temporary buffer that holds a small subset

of pixels in the frame memory for accelerating rendering operations. Thus, assuming

arguendo that this pixel buffer would correspond to the first apparatus in the present

application, the first apparatus would hold the entire frame buffer, which is essentially

different from the pixel buffer in Deering.

For example, in Deering, the pixel buffer needs to read pixel data from the second

apparatus (DRAM) in order to update the data.

In comparison, in the claimed invention, since the first apparatus includes the entire

copy of the frame buffer, the first apparatus does <u>not</u> need to read pixel data from the second

apparatus.

Thus, if the teachings of Deering were applied to the system configuration, for example, in the claimed invention, a bi-directional high speed link would be necessary between the two apparatuses.

In contrast, in the exemplary aspects of the claimed invention, a high speed link preferably is necessary only from the first apparatus to the second apparatus. On the other hand, the other connection from the second apparatus to the first apparatus can use a low-speed link.

Second, Deering uses memory write commands to update the frame memory. In contrast, the claimed invention uses graphical drawing commands.

Since graphical drawing commands provide a higher-level of abstractions than memory write commands, the claimed invention advantageously is capable of reducing the amount of the data volume further than Deering.

In other words, as mentioned above, in Deering, the first apparatus, the SRAM buffer (200, Figure 7) can hold a small subset of the second apparatus, the DRAM banks (Figure 4). Thus, if Deering were applied to arrive at the claimed invention, the first apparatus would need to obtain the pixel data from the second apparatus to update updated areas. This means that the alleged system configuration would need a bi-directional high speed communication channel.

Moreover, Applicants submit that it would not have been obvious to combine Yutaka, Peaslee, and Deering to arrive at the claimed invention, since Yutaka, Peaslee, and Deering,

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either individually or in combination, do not reduce the amount of the data volume to be

transferred between the two apparatuses.

Thus, Applicants respectfully submit that Yutaka, Peaslee, and Deering, either

individually or in combination, clearly do not disclose or suggest all of the features of the

claimed invention, as alleged by the Examiner. Accordingly, Applicants respectfully request

that the Examiner withdraw this rejection.

Additionally, while Applicants believe that claims 18-20 clearly are patentable over

any combination of the cited references, to speed prosecution, Applicants have amended

claims 18-20 to define more clearly and particularly the features of the claimed invention.

For example claims 18-20 recite, *inter alia*, that "said communication controller

transfers only updated areas on a frame memory by analyzing graphics commands in a form

of drawing commands to said second apparatus" (emphasis added).

Applicants submit that none of the cited references, in this rejection or otherwise,

either individually or in combination, discloses or suggests these features of the claimed

invention.

E.   Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable

over Yutaka in view of Peaslee, and in further view of Epard.

Epard discloses that two apparatuses are connected via a communication medium and

that the two apparatuses have a drawing engine with a dedicated frame memory. In Epard,

the source computer system translates graphics commands to another set of graphics

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commands from which the destination computer can generate an identical image (e.g. see

Epard at column 64, lines 59-68). This translation is done by a command-by-command basis

(e.g., see Epard at column 64, lines 59-68).

This means that in Epard the first apparatus does not merge graphics command to

reduce the amount of the data volume that the first apparatus transmits to the second

apparatus.

Thus, Epard clearly does not make up for the deficiencies of Yutaka and Peaslee,

which also do not disclose or suggest reducing the amount of data volume.

For the foregoing reasons, Applicants respectfully submit that it would not have been

obvious to combine Yutaka, Peaslee, and Epard to arrive at the claimed invention.

Moreover, even assuming *arguendo* that it would have been obvious to combine these

references, as alleged, Applicants respectfully submit that the alleged combination of Yutaka,

Peaslee, and Epard would not disclose or suggest all of the features of the claimed invention,

as defined by claims 21-24.

F.   Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over

Yutaka in view of Peaslee, in further view of Epard, and in further view of Nitta.

First, Applicants submits that it would not have been obvious to combine Yutaka,

Peaslee, Epard, and Nitta to arrive at the claimed invention.

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For example, as mentioned above, the alleged combination of Yutaka, Peaslee, and

Epard would <u>not</u> be capable of <u>reducing the data/command traffic</u> between the first apparatus

and the second apparatus.

On the other hand, Nitta, which also does <u>not</u> disclose or suggest <u>reducing the</u>

<u>data/command traffic</u> between the first apparatus and the second apparatus, does <u>not</u> make up

for the deficiencies of Yutaka, Peaslee, and Epard.

Second, even assuming *arguendo* that a reasonable motivation existed for combining

the references in the manner alleged by the Examiner, Applicants submit that the alleged

combination of Yutaka, Peaslee, Epard, and Nitta, either individually or in combination,

would <u>not</u> disclose or suggest all of the features of the claimed invention.

For example, contrary to the Examiner's position (see Office Action at pages 7-8,

bridging paragraph), Nitta does <u>not</u> describe an apparatus that merges and holds certain

graphics commands in the apparatus until the communication link becomes ready.

Instead, in Nitta, the first apparatus includes a hold signal generating circuit (122 in

Figure 2), which includes a comparator (COMP in Figure 2). The comparator compares the

input data (DA1 in Figure 2) with the one in the last clock cycle (DA2 in Figure 2). The hold

signal becomes high one cycle after DA1 and DA2 becomes the same (CYCLE 4 and 8 in

Figure 3).

Thus, the hold signal merely indicates that the transmitter is sending the same data

continuously. Indeed, the device of Nitta <u>has nothing to do with</u> merging graphics

commands, according to the claimed invention.

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In other words, Nitta only generates a hold signal when a pixel data is the same as the one in the last clock cycle. Nitta introduces a one-clock delay in the pixel data by using a latch (LAT1 in Figure 2) to generate the hold signal but the delay <u>has nothing to do with</u> generating identical images at the two apparatuses.

Therefore, Applicants submit that Yutaka, Peaslee, Epard, and Nitta, either individually or in combination, would <u>not</u> disclose or suggest all of the features of the claimed invention.

While Applicants believe that claim 25 is patentable over the alleged combination of references, <u>to speed prosecution,</u> Applicants have amended claim 25 to define more clearly and particularly that "*said first drawing engine and said second drawing engine generate identical images including a different timing due to <u>due to at least one communication error from said first apparatus to said second apparatus</u>*" (emphasis added), as exemplary illustrated in Figure 16 and exemplarily described in the corresponding disclosure.

Applicants submit that Yutaka, Peaslee, Epard, and Nitta, either individually or in combination, clearly do <u>not</u> disclose or suggest at least this feature of the claimed invention.

For the foregoing reasons, Applicants submit that it would <u>not</u> have been obvious to combine Yutaka, Peaslee, Epard, and Nitta to arrive at the claimed invention.

Moreover, Applicants submit that, even assuming *arguendo* that a reasonable motivation existed for making the alleged combination, Yutaka, Peaslee, Epard, and Nitta, either individually or in combination, still would <u>not</u> disclose or suggest all of the features of the claimed invention.

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III. CONCLUSION

In view of the foregoing, Applicants submit that claims 1-25, all the claims presently

pending in the application, are patentably distinct over the prior art of record and are in

condition for allowance. The Examiner is respectfully requested to pass the above

application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance,

the Examiner is requested to contact the undersigned at the local telephone number listed

below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit

any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: ___July 11, 2005___

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CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (703) 872-9306 the enclosed Amendment

under 37 C.F.R. § 1.111 to Examiner Joni Hsu, Art Unit 2676, on July 11, 2005.

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